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DIVISION OF OIL  
GAS & MINING

P.O. Box 250  
EUREKA, UTAH 84628  
[ 801] 433-6854

T.B. HANNIFIN, JR.  
General Manager

Re: Tailings Ponds Modification  
ACT/049/009  
Utah County, Utah

Susan C. Linner  
Reclamation Biologist/Permit Supervisor  
Utah Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Ms. Linner:

The purpose of this letter is to address the remaining unresolved issues relating to Sunshine's December 1985 Tailings Pond Modification application. It is our hope these application modifications can be quickly processed by the Division. Following are Sunshine's responses to the issues outlined by the Division in your letter dated January 21, 1986.

The Division has stipulated pond liners shall meet the requirements of State Health. Sunshine Mining Company has verbally consented to State Health that all clay liners will meet their prescribed standards and criteria.

Rule M-3 (2) LK

Sunshine Mining Company will use a straw mulch to cover the interim seed program on all downslope sides of tailings dams and soil stockpiles. The mulch will consist of straw used at the rate of 1 ton/acre to cover seeded areas. Ammonium nitrate will also be applied at a rate of 80/100 lbs per acre on all reseeded areas. The mulch seed mixture and fertilizer will then be disked to a depth of 2"-3" to prevent wind erosion.





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Rule M-3 (e) - DC

Sunshine has submitted a map depicting the understurbed watershed from which the runoff will be diverted around the tailings ponds. During a meeting with personnel from your Division at our operations they indicated we may give you the information needed to calculate the peak flow resulting from the 10 year, 24-hour storm. This information will then be used to determine the size of the diversion ditch to carry this flow and we will construct this diversion ditch to meet or exceed design specifications. The necessary information needed to determine design specifications are shown on Attachment C.

Rule M-5 - JRH

A cost estimate for reclamation, Attachment A, has been completed and Sunshine Mining Company and their Surety Company will prepare a rider to cover these ponds under their present bond contract. This rider will be presented to your Division upon its completion.

Individual estimated acres that will be disturbed are shown on both Attachment B and the plan map.

Rule M-10 (8) - DC

Sunshine Mining Company will design and construct the diversion ditch so that it will be used for natural drainage after the tailings ponds have been reclaimed. This will prevent future erosional problems through the ponds and prevent impounded tailings from being hydraulically transported from their storage site.



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ATTACHMENT A

Tailings Ponds A-C Reclamation Costs

Tailings and Dams:

|   |                  |
|---|------------------|
| heavy equipment 6 days @ \$90.00/hr       | \$ 4,320.00      |
| 3-man clean-up crew 3 days @ \$25.00/hr   | 1,800.00         |
| reveg. eng. 2 days @ \$35.00/hr           | 560.00           |
| revetetation of 10.01 acres @ \$1000/acre | <u>10,010.00</u> |
|   | \$16,690.00      |

Monitoring:

|                             |                  |
|-----------------------------|------------------|
| monitor seeding for 3 years | <u>\$ 760.00</u> |
|                             | \$ 760.00        |

|        |                           |
|--------|---------------------------|
| TOTAL: | <u><u>\$17,450.00</u></u> |
|--------|---------------------------|



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ATTACHMENT B

Estimated acres that will be disturbed  
by constructing tailings ponds A-C

| <u>Area</u>           | <u>Estimated Acres</u> |
|-----------------------|------------------------|
| Pond A                | 2.29                   |
| Pond B                | 2.50                   |
| Pond C                | 2.94                   |
| Tails Line Corridor   | 0.32                   |
| Access Roads          | 0.55                   |
| Diversion Ditch       | 0.41                   |
| Topsoil Storage Areas | <u>1.00</u>            |
| TOTAL:                | <u><u>10.01</u></u>    |



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ATTACHMENT C

Trixie Tailings Ponds

Additional Information:

1. Contour map showing:

- Watershed area
- Hydraulic length
- Watershed slope
- Diversion ditch

2. Watershed area (Ref. map)

$$43.26 \times \frac{2}{200/43,560} = 39.72 \text{ acres}$$

Use 40.0 acres

3. Hydraulic length (Ref. map)

$$(3980 + 3970)/2 = 3975 \text{ ft}$$

Use 4000 ft

4. Watershed slope (Ref. map)

$$\begin{aligned} 5900 - 5510 &= 390 \\ 390/4000 &= 0.75\% \end{aligned}$$

9.

*use s/s slope method*

5. Peak flow calculation input

- Curve number (Ref. U.S. Bureau of Rec.)  
Weighted average of curve 67 & 70  
Use 69.6 (see orig. application page 10)
- Precipitation depth for design storm  
Use 1.70 in. for 10-year, 24 hr. storm  
(Ref. Miller et al, 1973)



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Rule M-10 - Soils - JSL

Three topsoil samples have been taken from each proposed pond site. Each sample will be analyzed for the following and will be forwarded to your Department.

Nitrogen  
Phosphorus  
Potassium  
pH  
Electrical Conductivity

Rule M-10 (14) - Soils - JSL

Sunshine Mining Company at the time of pond reclamation will analyze tailings impounded in these ponds. This analysis will include Sodium Absorption Ratio (SAR) and all parameters submitted in the December 17, 1985 submittal.

All analytical results from these soil samples will be forwarded to your Department.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Glenn M. Mellor", is written above the typed name.

Glenn M. Mellor  
Senior Geologist

GMM/lrl